Environmental *Cleanup* REVIEW

This fact sheet provides information on environmental cleanup issues at the Jet Propulsion Laboratory (JPL). Subjects include the Superfund cleanup process, the significant progress that has been made, the work that lies ahead, and how the community can get involved. Future fact sheets will provide more information on the Superfund cleanup process and updates on the progress made.

Jet Propulsion Laboratory

JPL is a 176-acre research complex located on the border between northwestern Pasadena and La Canada–Flintridge (see the map below). The facility is operated for the National Aeronautics and Space Administration (NASA) by the California Institute of Technology (Caltech). JPL is responsible for research and development in aeronautics, space technology, and space transportation, with a focus on the automated exploration of the solar system.

JPL's history began in 1936 when Professor Theodore von Karman and several graduate students of Caltech began rocket experiments in the Arroyo Seco creekbed in the foothills north of Pasadena. In 1945, JPL came under contract to the U.S. Army and remained under Army control until NASA took over in 1958. During the Army years, JPL developed the Corporal and Sergeant missile systems and also launched Explorer 1 — the first U.S. satellite — which discovered the Van Allen radiation belts surrounding Earth.

JPL is currently involved in the exploration of Earth and the solar system with automated spacecraft, and the design and operation of the global Deep Space Network that tracks the spacecraft. Since 1958, JPL has manages the Ranger and Surveyor missions to the Moon; the Mariner missions that explored Mars, Venus, and Mercury; the Viking Mars Orbiters; the Voyager missions to Jupiter, Saturn, Uranus, and Neptune; and the Earth-orbiting Infrared Astronomical Satellite. JPL's current projects include Galileo, a Jupiter orbiter and probe; Magellan, a Venus orbiter with radar-mapping capabilities; and Ulysses, a mission to explore the poles of the Sun.

JPL currently has a work force of approximately 8,000 people in the Los Angeles area; roughly 6,000 are employees and 2,00 are contractors. Over half live within 10 miles of the facility.

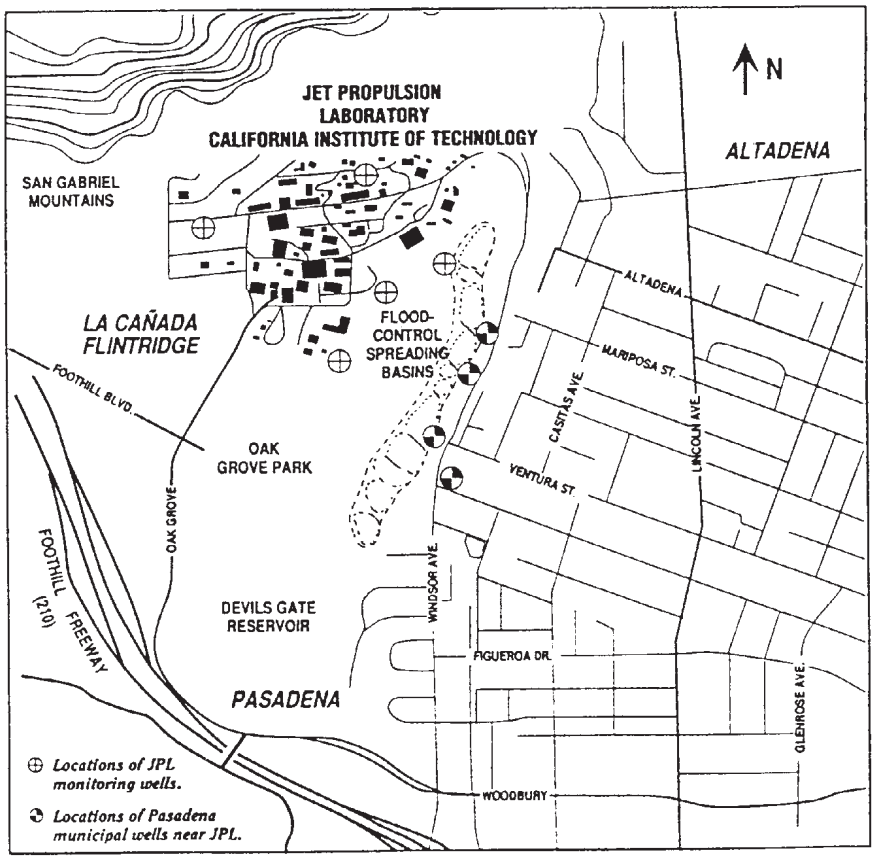
Pasadena Wells

In 1980, the city of Pasadena discovered that municipal wells within 2,000 feet, and to the southeast, of JPL were contaminated with traces of the following solvents: trichloroethylene (TCE). perchloroethylene (PCE), and carbon tetrachloride (CTC). Eventually, four wells were shut down by the city because of contaminant levels; three of these are in the Arroyo Seco above Devils Gate Reservoir (see map). JPL and the city of Pasadena conducted preliminary investigations in 1982, 1984, 1986, and 1987 to begin to assess hydrologic conditions in the Arroyo Seco and explore treatment alternatives.

In February 1990, JPL funded the construction of a temporary water treatment plant for the city of Pasadena. Construction of this facility, completed in September 1990, allowed Pasadena to continue to provide clean drinking water to its customers in a timely and cost-effective manner.

Environmental Cleanup Effort

"Superfund" is the name commonly used for the Comprehensive Environmental Response, Compensation, and Liability Act, a federal law enacted in 1980. In 1986, the Superfund Amendments and Reauthorization Act (SARA) required federal facilities to conduct investigations of past waste-management activities. In response to SARA,



This map shows the locations of JPL and the surrounding communities.

JPL conducted a preliminary assessment and site inspection in the early part of 1988. During this investigation, possible historical disposal areas were identified.

An expanded site inspections (ESI) was conducted in 1990 and included the installation of five monitoring wells around JPL. Groundwater sampling reults indicated the presence of TCE, PCE, CTC, and 1,1-dichloroethene (all volatile organic compounds) above California drinking-water standards in at least one well. Information collected during the ESI will be used by the U.S. Environmental Protection Agency (EPS) to score the JPL site on the Hazard Ranking System, a tool used to establish remedial response priorities and to place the most contaminated sites on the National Priorities List (NPL). Approximately 1,200 sites across the country are currently on EPA's NPL.

Contamination detected during the ESI may be linked to JPL's past waste-management practices. During the 1940s and 1950s, nearly every building at JPL maintained a cesspool to dispose of liquid and solid wastes through drains and sinks within the buildings. Designed to allow liquid wastes to seep into the surrounding soil, these cesspools were a common practice at the time — one followed by most other facilities in the area. Since almost all buildings at JPL at one time either used or stored hazar-dous chemicals necessary for rocket and spacecraft development tasks — including solvents, freon, and mer-cury — it is believed that the cesspools received these chemicals, along with various chemical-laboratory wastes, in unknown quantities.

Although the cesspools were abandoned in the late 1950s, a number of them may have been primary sources of volatile organic compounds. Increased environmental awareness over the past two decades has brought to light the fact that these waste products, if disposed of improperly, may be harmful to human health and to the environment.

Future Plans

JPL will continue the Superfund process with a remedial investigation/feasibility study (RI/FS), which will characterize possible source areas and further define the extent of groundwater contamination. During the RI/FS — which is expected to be completed in two years — JPL plans to install a number of additional monitoring wells and to conduct 30–40 soil borings where suspected source areas are located. The field work for these projects is scheduled to begin in the spring of 1991.

As part of the RI/FS, JPL will evaluate alternative solutions and develop a cleanup plan, which will be proposed to the EPA, the Regional Water Quality Control Board, and the California Department of Health Services. After a cleanup plan is approved and documented in a "record of decision," JPL will develop work plans to implement the cleanup, and the cleanup will begin.

The final step in the Superfund process is called "operation and maintenance," in which cleanup results are measured over tiome. The complete Superfund cleanup effort — which is monitored by the EPA and other agencies — is illustrated in the figure to the right.

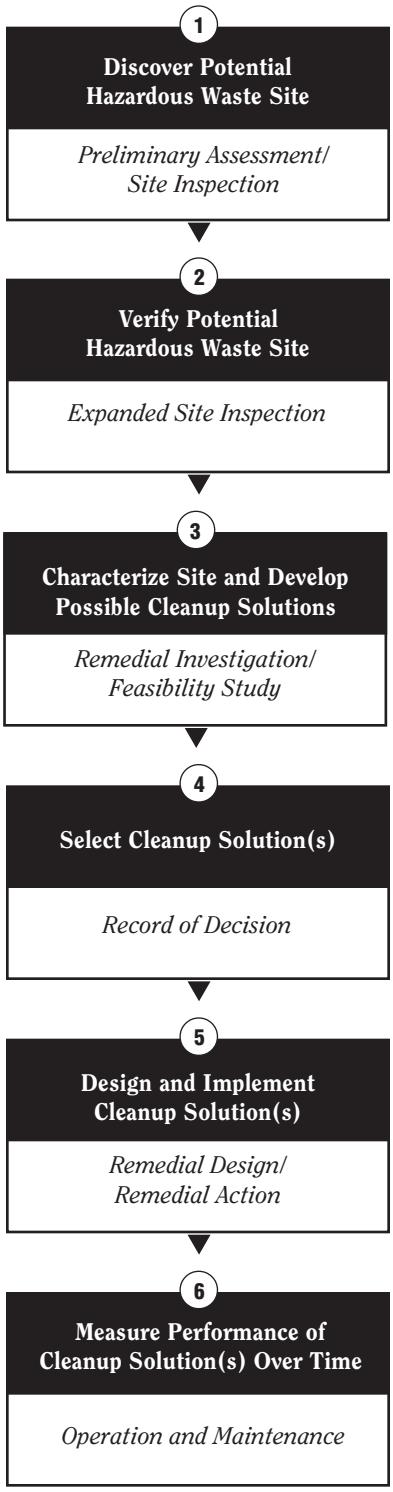
Community Relations

In accordance with provisions of SARA, JPL will develop and implement a community relations program concurrent with the RI/FS. The goals of the community relations program are to inform the community about the environmental cleanup and to allow the community to voice its concerns.

To accomplish these goals, JPL will conduct interviews and host formal and informal community meetings at critical decision points in the Superfund process. JPL will also maintain and update information repositories containing copies of documents relating to the site cleanup, These repositories will be located at

- ***Pasadena Central Library***
  285 East Walnut, Pasadena
- ***La Cañada Flintridge Public Library***
  4545 West Oakwood Avenue.
  La Cañada
- ***JPL Library***
  4800 Oak Grove Drive, Pasadena
- ***Altadena Public Library***
  600 East Mariposa Street,
  Altadena

Superfund Cleanup Process



For more information on the cleanup effort and community involvement, please call or write the Public Services Office, Mail Stop 180-205, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, California 91109-8099; (818) 354-0112.

National Aeronautics and Space Administration

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